

**ABSTRACT**

The invention provides a method for automatically setting up the Raman gain within an optical transmission fibre, having at least one pump, by modulating the power of the pump or pumps; detecting the effect of the modulation on signals transmitted over the fibre; and adjusting the power of the pump or pumps in dependence on the detected effect. Corresponding apparatus for automatically setting up the Raman gain of an optical transmission fibre includes at least one pump for applying optical power to the Raman fibre, a modulator to modulate the pump power, a detector for detecting the depth of modulation of a signal subjected to the modulated pump, a comparator to determine the variation in modulation depth of the signal, and a controller for adjusting the power of the pump in dependence on the output of the comparator. The method may be carried out by a suitably programmed general purpose computer. The invention also provides a gain monitoring system and a pump power controller for carrying out the method.